

Translation

PATENT COOPERATION TREATY

PCT/JP2003/004399



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Applicant's or agent's file reference 903103 | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/JP2003/004399 | International filing date (<i>day/month/year</i>) 07 April 2003 (07.04.2003) | Priority date (<i>day/month/year</i>) 08 April 2002 (08.04.2002) |
| International Patent Classification (IPC) or national classification and IPC F28D 15/02, F25D 11/00 | | |
| Applicant SHARP KABUSHIKI KAISHA | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

| | |
|--------------------------------------------------------------------|----------------------------------------------------------------|
| Date of submission of the demand 22 September 2003 (22.09.2003) | Date of completion of this report 22 June 2004 (22.06.2004) |
| Name and mailing address of the IPEA/JP | Authorized officer |
| Facsimile No. | Telephone No. |

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP2003/004399

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
pages _____ 1, 2, 5-10 _____, as originally filed
pages _____, filed with the demand
pages _____ 3, 4 _____, filed with the letter of _____ 05 March 2004 (05.03.2004)
- ☒ the claims:
pages _____ 3-9 _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____ 1, 2 _____, filed with the letter of _____ 05 March 2004 (05.03.2004)
- ☒ the drawings:
pages _____ 1-7 _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP 03/04399

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|--------|-----|-----|
| Novelty (N) | Claims | 1-9 | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | | YES |
| | Claims | 1-9 | NO |
| Industrial applicability (IA) | Claims | 1-9 | YES |
| | Claims | | NO |

2. Citations and explanations

Document 1: WO 02/16836 A1 (Sharp Corporation), 28 February 2002

Document 2: Microfilm of the specification and drawings annexed to the Japanese Utility Model Application No. 64551/1993 (Laid-open No. 32456/1995) (Fujikura Ltd.), 16 June 1995

The inventions set forth in claims 1 to 4 and 9 do not involve an inventive step in the light of documents 1 and 2. Document 1 (fig. 5) sets forth a refrigerator provided with a loop-type thermosiphon which comprises a condenser having a heat absorption unit fitted to the high-temperature portion (2) and an evaporator (36) which circulates heat from a high-temperature heat source via the heat absorption unit and evaporates the working fluid, wherein said condenser (38) is positioned at a higher position than the high-temperature heat source and condenses working fluid evaporated by the evaporator, and pipes connecting the evaporator and the condenser in such a manner as to form a loop. Document 2 sets forth an invention wherein the working fluid condensed by the condenser unit is introduced in such a manner that it drops down from above the evaporator (4); wherein the flow resistance of the piping which draws the working fluid

evaporated by the evaporating unit to the condenser unit is set lower than the flow resistance of the piping which draws the working fluid condensed by the condenser unit; and wherein a flow-rate control valve is provided to the piping which leads the working fluid condensed by the condensing unit to the evaporating unit. It would be easy for a person skilled in the art to employ the invention set forth in document 2 in the device set forth in document 1.

The invention set forth in claims 5 to 8 does not involve an inventive step in the light of documents 1 and 2. Determining the quantity of the working fluid enclosed in the invention set forth in document 2 is a feature which could be set as necessary by a person skilled in the art. Moreover, determining what type of working fluid to employ in the invention set forth in document 1 is a feature which could be determined as necessary by a person skilled in the art.